

PART of ROUGH
DRAFT

3(b), 1(c)

**Subject: CANTON CROP FORGE (CDF), CANTON, OHIO
Oil/Water Separation Design**

OVERVIEW:

Currently various waste streams are sent to three ponds in series for treatment. The waste streams include oil separated from the waste stream off the forge presses. Oil is injected on the inlet side of the hammers for lubrication. Discharge steam from the presses passes through a steam/oil separator. Oil from this process is recovered in Pond No. 1. The project should evaluate three items.

1. There are three distinct condensate systems: the main exhaust, the Power House low pressure steam, and the primary separator. FBA will evaluate the upgrade of each system.
2. Replacement of oil/water separation system with a new more efficient inground tank. This item will include repiping of facility to new unit. It should also consider placing oil separator as close to the source as possible.
3. Replace existing steam/oil separator on main 14-inch exhaust line with new best available technology unit. FBA should present latest technology available for consideration.
4. Closure of existing Pond No. 1. FBA will provide permitting requirements for closure of the pond along with a work plan for sampling and testing of sediment not able to be recycled.

OIL/WATER SEPARATION PHASE

SITE INFORMATION:

The existing site comprise approximately 31 acres along the north side of Southway St. Currently the surface drainage is collected in three ponds, designated as Pond No. 1, 2 and 3. The project site has several storm drains which receives flushing water, roof drains and surface drainage exiting into on-site ponds. The ponds are identified as No. 1, 2 and 3. Pond No. 1. Approximately six (6) acres collects in Pond No. 1 on the west end of the site. Pond No. 2 collects the major part of surface drainage through out the center of the site. About eleven (11) acres draining eastward and about fifteen (15) acres draining westward into Pond No. 2. The area collecting into Pond No. 1 and the 11 acres draining eastward into Pond No. 2 comprise the extent considered as the limits for treating the runoff from the oil contaminated surfaces. The balance of the area is generally free from contaminants and is collected in pond No. 2 and pond No. 3. A small amount of drainage discharge in existing swales and draining off to open streams.

EXISTING FACILITIES:

The Pond No. 1 at the west end of the plant receives runoff has four drains in the area. Three are approximately six to eight feet below the surrounding surface while one is approximately

eighteen feet below grade. Its is impractical to install underground oil water separator below six foot of cover. The deeper installation will require engineering design that currently is not available. The shallow installations are available form several manufacturer and will contribute to competitive bidding. The total flow going to the separator should be brought up to a higher elevation and discharge to a shallow storm water collection system.

The existing storm drains discharging into Pond No. 1 ought to be collected into a single system, pumped to a higher elevation and routed through a shallow oil water separator. The economical advantage would be in lower installation and construction cost for the oil water separator.

Pond No. 2 has three pipes at approximately five to nine foot deep. There is the possibility of going upstream to intercept and treat the wastewater. Collecting contaminated and surface runoff at or nearest to the point of pollution could be a major benefit in construction cost. Rerouting of storm collection system may be more suitable and provide a better solution to a problem.

Pond No. 3 appears to have very little contamination in the area and will not be considered in treating any wastewater UNDER THE CURRENT CONTRACT.

SURFACE WATER RUNOFF PARAMETERS:

Design parameters for estimating surface runoff is determined by selecting a rainfall event and calculating the Design Flow for the contaminated area. The treatment rate is established by calculating the surface area in square feet times the rainfall in inches per hour converted to cubic feet times gallons per cubic feet divided by sixty minutes to get gallons per minute. The treatment rate can be determine by the following:

$$Q \text{ (gpm)} = \text{Area (Sq. Ft.)} \times \text{Rainfall In./Hr.} \times 0.0104 \text{ gpm}$$

The rainfall event selected and put into the calculation will affect the required size of an oil water separator(s). The amount of rainfall expected every two years for the Canton area would be 1.2 inches per hour. Applying this factor in the calculation to the existing tributary area to Pond No. 1 an 2 would equate to 10,000 gallons per minute (gpm). A five year rainfall criteria would produce approximately 12,000 gpm and a ten year rainfall would generate 16,000 gpm.

The total flow if captured with the ten year rainfall with 16,000 gpm would require four oil water separator with a flow rate of four thousand gpm each. The cost of each separator installation and associated requirements would establish the base price at the design rate noted.

A consideration for reducing the potential high cost would be to provide the highest degree of treatment at the lowest cost of capital improvements. Isolation and determination of contaminate area is the initial step for computing and sizing an oil water separator. When permitted or by design water-run from essentially oil-free areas should be routed around the separator, otherwise the facilities for separation becomes too large. Storm water from surface areas that are essentially free from contamination and can be collected in a separate drainage system should be considered.

Approximately the east half of the plant site is relative free from oil contamination and can drain directly into existing surface collection system.

A design option for treating first flush of all storm water through an oil-water separator and bypass the excess flow into Pond No. 2. This would favor a reduce design criteria for sizing an underground oil water separator and be a significant economical strategy.

Pond No. 2 currently has a existing twenty four hour surface water oil collection system that remove oils mechanically. This system would still provide the opportunity to remove floating oils when storm bypass or excessive rainfall events would occur.

TREATING OILY WASTEWATER:

Rendering oily wastewater acceptable in outfall drainage facilities can be achieved with a number of methods. These can include gravity, coalescing with a media, flotation, chemical and physical treatment. Parameters should consider maximum and minimum flow rates. Condition of the oil, both in free and globules. Specific gravity and viscosity affect the productive rate of removal. The pH and temperature are other parameters that should be considered when solving removal solutions.

Oil water separators can be installed above grade or underground. Surface runoff can be treated effectively with underground tanks. The depth of existing drainage systems are a factor in design strategy used and followed by manufactures.

TREATMENT APPROACH:

The basic tactic considered is to collect the storm water at such rate to capture the design flow in existing and or new storm drain system, control the flow, separate the oily wastewater and discharge the effluent to receiving waters. The storm runoff will be directed to an underground oil-water separator. The oil (light oils and greases) and heavy sludges (grease, oils and foreign matter) will be separated from the surface runoff, stored, monitored and the captured oil and sludges will be pumped out from the storage vessel.

Consideration in recovering and disposing of the sludges from the storage tank should be given to the following:

1. Contract out to private hauler the removal of wet sludges on an annual bases.
2. Install a sludge press to minimize and reduce the quantity of sludge hauled from the plant.

OIL/WATER SEPARATION OBJECTIVE:

Currently various waste streams are directed to the ponds for collection and treatment. The waste streams include oil collected from the forge presses. Discharge steam from the presses passes through a steam/oil separator. Oil from this process is recovered in Pond No. 1. Other oils are collected in pond No. 2. Improved oil/water separation can be achieved with underground oil/water separators. These are place at strategic locations on or with the storm drainage system, intercepts the surface run off and treats the oily waste through gravity removal, assist coalescing, air flotation, chemical treatment and physical ultrafiltration.

The underground gravity and coalescing oil/water separator tank will be the method considered for removing oily waste from the surface runoffs. Surface runoff is generated by the

annual rainfall. Rainfall intensity has a major effect on the washing, flushing and naturally cleansing the surfaces of roofs and grounds. The storage of casting and other materials contribute to the oil entering the storm water system. The amount will vary with the intensity of the rainfall and natural gravity flow of liquids finding their way into the waste stream.

PROPOSED OPTIONS:

******THE FOLLOWING IS ONLY A CHECK LIST******
IT NEEDS TO BE PUT IN A BRIEF WRITTEN FORM.

OPTION 1

SW SIDE: OIL WATER SEPARATOR w/ SCREW PUMP

- 1. ROUTE AND COLLECT STORM DRAINS TO ONE LOCATION - NEW STORM DRAIN**
- 2. PUT IN SCREW PUMP TO RAISE LIQUID TO HIGHER ELEVATION**
- 3. SIZE AND PROPOSE OIL WATER SEPARATOR UNIT(S)**
- 4. SIZE AND ROUTE EFFLUENT THROUGH STORM DRAIN TO POND NO. 2**

OPTION 2

SW SIDE: OIL WATER SEPARATOR w/ NEW STORM DRAIN "A"

- 1. ROUTE NEW STORM DRAIN TO A LOCATION (SHALLOW SYSTEM)**
- 2. SIZE AND PROPOSE OIL WATER SEPARATOR UNIT(S)**
- 3. SIZE AND ROUTE EFFLUENT THROUGH STORM DRAIN TO POND NO. 2**

OPTION 3

SW SIDE: 1 OIL WATER SEPARATOR w/ STORM DRAIN "B" & BYPASS

- 1. ROUTE NEW STORM DRAIN TO A LOCATION (SHALLOW SYSTEM)**
- 2. PROVIDE STORM BYPASS STRUCTURE TO POND NO. 2**
- 3. SIZE AND PROPOSE OIL WATER SEPARATOR UNIT(S)**
- 4. SIZE AND ROUTE EFFLUENT THROUGH STORM DRAIN TO POND NO. 2**

OPTION 4

CENTER: OIL WATER SEPARATOR ON EXISTING STORM DRAIN

- 1. SEPARATE SYSTEM AND COLLECT NORTH DRAINAGE TO A SEPARATOR**
- 2. SIZE AND PROPOSE OIL WATER SEPARATOR UNIT(S)**
- 3. SIZE AND ROUTE EFFLUENT TO POND NO. 2**

OPTION 5

CENTER: OIL WATER SEPARATOR ON EXIST. NORTH DRAIN w/ BYPASS

- 1. SEPARATE SYSTEM AND COLLECT NORTH DRAINAGE TO A SEPARATOR**
- 2. PROVIDE STORM BYPASS STRUCTURE TO POND NO. 2**
- 3. SIZE AND PROPOSE OIL WATER SEPARATOR UNIT(S)**
- 4. SIZE AND ROUTE EFFLUENT TO POND NO. 2**

OPTION 6

CENTER: OIL WATER SEPARATOR w/ CENTER STORM DRAINS w/ BYPASS

1. ROUTE AND COLLECT STORM DRAINS @ CENTER LOCATION, NEW STORM DRAIN
2. PROVIDE STORM BYPASS STRUCTURE TO POND NO. 2
3. SIZE AND PROPOSE OIL WATER SEPARATOR UNIT(S)
4. SIZE AND ROUTE EFFLUENT THROUGH STORM DRAIN TO POND NO. 2

OPTION 7

CENTER: OIL WATER SEPARATOR @ CENTER w/ BYPASS

1. ROUTE AND COLLECT ALL STORM DRAINS @ ONE LOCATION w/ BYPASS
2. PROVIDE STORM BYPASS STRUCTURE TO POND NO. 2
3. SIZE AND PROPOSE OIL WATER SEPARATOR UNIT(S)
4. SIZE AND ROUTE EFFLUENT THROUGH STORM DRAIN TO POND NO. 2

RECOMMENDED SOLUTIONS:

NEED TO FINISH COST BEFORE DECIDING BEST ALTERNATIVE!

Oil/water separators close to source?

*1 - central separators
several small separators*

FBA ENVIRONMENTAL, INC.

MINUTES OF MEETING

CLIENT Canton Drop Forge **DATE** June 29, 1994
JOB NO. 7300-01

PRESENT FOR CLIENT Keith Houseknecht

PRESENT FOR FBA Randy Drazba, Carl Mumford, Willis Thomas and Chuck Hall

LOCATION Canton, Ohio

Items of discussion:

1. The sanitary line from Building "A" actually flows inside of another sewer at Building "B".
2. Keith made comments on our drawing. He recommends that FBA's survey crew return to the plant before 2:00 p.m. A Canton Drop Forge pipe fitter who has the most knowledge of plant piping completes his shift at 2:00 p.m. If we cannot have the survey team there tomorrow before 2:00, then we should reschedule this work for next week.
3. Canton Drop Forge will be sampling steam lines before entry into the separator (temperature, steam flow and ppm oil). Steam flow varies tremendously.
4. Hot Process Softener removes most oil before water and/or steam goes to boiler. Have three boilers at 59,500 PPH each.
5. Oil is fed directly into each hammer and is consistent throughout shop. Die oil varies according to type of product.
6. Over next five years Canton Drop Forge will be evaluating the future of the hot process softener (HPS). P = pump. Keith's idea about the process change is shown below:

----> HPS ----> 2 stage anthracite filters ----P----> boilers

They are considering diverting steam to zeolite softeners followed by oxygen scavenger before the anthracite filters.

7. Keith wants a static screen designed in pairs so one unit or part of unit may be removed for cleaning. The screen would be installed upstream of cyclone separator. This screen could be similar in design as a Y-type strainer with two separated legs.
8. Die lube is Rite Lube (heavy oil SP = 1.06 & 1.2). Cylinder oil is injected into the hammers. Attached are MSDS sheets on these oil products.
9. Keith does not have any topo maps of site grading.
10. In the southeast corner of the Die Shop Building there is a cooling water system that discharges an oily blowdown.
11. Keith's O/W concept is to use satellite "small" separators located at various processes. Pond No. 1, adjacent to Main Stack; Boiler House near Hot Process Softener.
12. Highland requires coalescers to get oil/grease to 15 mg/l? Continuous oil removal would minimize oil sloughing from separator during high flows.

Keith recommends treating first flush and a by-pass structure would be used to collect solids and trap oil for diverting to a satellite O/W separator. Keith seems to be leaning in the direction of the Highland Tank Unit type O/W separator. Willis considered 10-year 1.8 to 2.0" rainfall.

A 2-year event is 1.5" to 1.6" storm

13. Keith wants to concentrate and/or dewater sludge to meet Paint Filter Test for landfilling the sludge. He asked that we house these dewatering facilities in a pole barn type structure. They have ash on site that can be mixed with the dewatered sludge for increasing the solids concentration.


FBA should also consider some type of oil storage tank for collecting, concentrating and storing oil for periodic removal by a private contractor.

Separate Die Lube which would be discharged to 55-gal drum for Contractor to process for reuse. This oil contains graphite.

14. Canton Drop Forge is an industry defined by the following: SIC Code 30; process metals industry; and they participate with the Forging Industry Association.

Canton Drop Forge
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15. Provide Treatment Building - "Dedicated Pole Barn". Can mix ash from Boiler House to increase solids and also scrapings from floors.



Randy Prazba

S:\Shared\Div2\WP\RKD\Candrp.Min

1
omer Number : 94000

RITE-LUBE CORPORATION

Date - 6/22/90
SHIPPER NUMBER :

MATERIAL SAFETY DATA SHEET

REVISION NO. : 001

REVISION DATE : 1/26/90

SECTION I - SOURCE AND NOMENCLATURE

Manufacturer's Name
E-LUBE CORPORATION

Emergency Telephone No.
313-984-5581

Address
Box 120, Brookfield, Ohio 44403

Chemical Family
Graphite in Oil

Trade Name and Synonyms
ES 13557

Chemical Name and Synonyms
Structure

SECTION II - OSHA REGULATED INGREDIENTS

C.A.B. Material	Wgt %	Exposure Limit
8002-05-9 Petroleum Oil	76.00	5.00 MG/T
7782-42-5 Graphite	20.00	15.00 MPPC
7631-86-9 Amorphous Silica	2.00	6.00 MG/T

SECTION III - PHYSICAL DATA

Boiling Point	N/A	Vapor Pressure	N/A	Vapor Density	N/A
Melting Point	N/A	Evaporation Rate	N/A	Volatility	N/A
Specific Gravity	1.06	Solubility in Water	Insoluble		
Chemically Reactive:	N				
C. : N/A G/L,					
METHOD=EPA 24)					

Appearance/Odor

Black Fluid; Mild Petroleum Odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point : >450 F	FLAMMABLE (EXPLOSIVE) LIMITS	Upper	N/A
		Lower	N/A

Reactivity
Hazardous Open Cup
Extinguishing Media
M, CARBON DIOXIDE, DRY CHEMICAL.

Special Fire Fighting Procedures
F CONTAINED BREATHING SUPPLY.
Special Fire and Explosion Hazards
IE.

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure
Irritation

ACUTE EFFECTS EXPECTED WITHIN EXPOSURE LIMITS.

Irritation
1 CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING AND DIARRHEA.

2 CAUSE TEMPORARY EYE IRRITATION.

3 REPEATED OR PROLONGED CONTACT CAN CAUSE IRRITATION AND DERMATITIS.

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DEC 7 1990

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CANTON DROP FORGE

Spills and First Aid Procedures

Spills

AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR.

First Aid

IF INDIVIDUAL CALM AND SEEK MEDICAL ATTENTION IMMEDIATELY.

WASH EYES WITH WATER AND SEEK MEDICAL ATTENTION IF IRRITATION OCCURS.

WASH WITH SOAP AND WATER; REMOVE CONTAMINATED CLOTHING AND LAUNDRY BEFORE REUSE.

SECTION VI - REACTIVITY DATA

Conditions Contributing to Instability

None.

Conditions Contributing to Hazardous Polymerization

None.

Incompatibility (MATERIALS TO AVOID)

STRONG OXIDIZERS.

Hazardous Decomposition of Products

CO₂.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled

USE ADEQUATELY ABSORBENT MATERIAL AND TRANSFER TO CONTAINERS.

Disposal Method

CONSULT WITH FEDERAL, PROVINCIAL AND LOCAL WASTE REGULATIONS

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation Requirements

PROVIDE SUFFICIENT MECHANICAL VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

Protective Equipment:

WEAR SPLASH GOGGLES OR OTHER APPROPRIATE EYE PROTECTION.

Gloves

WEAR PROTECTIVE GLOVES TO PREVENT REPEATED OR PROLONGED CONTACT.

Respirator

IF THE TLV OF THE PRODUCT IS EXCEEDED, A MECHANICAL OR SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

Other

NO SPECIAL EQUIPMENT DEEMED NECESSARY UNDER NORMAL USAGE.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storage

AVOID PROLONGED INHALATION OF MISTS OR VAPORS.

The data are offered in good faith as typical values and not as a product specification. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

1
omer Number : 84000

RITE-LUBE CORPORATION

Date - 6/22/90
SHIPPER NUMBER :

MATERIAL SAFETY DATA SHEET

REVISION NO. : 001

REVISION DATE : 1/26/90

SECTION I - SOURCE AND NOMENCLATURE

Manufacturer's Name
E-LUBE CORPORATION

Emergency Telephone No.
313-984-5581

Address
Box 120, Brookfield, Ohio 44403

Chemical Family

Trade Name and Synonyms
ES 13640

Appearance in Oil

Chemical Name and Synonyms

Structure

SECTION II - OSHA REGULATED INGREDIENTS

C. A. S.	Material	Wgt %	Exposure Limit
8002-05-9	Petroleum Oil	58.00	5.00 MG/Y
7782-42-5	Graphite	23.00	15.00 MPPC
7631-86-9	Amorphous Silica	2.00	6.00 MG/Y

SECTION III - PHYSICAL DATA

Boiling Point	N/A	Vapor Pressure	N/A	Vapor Density	N/A
Boiling Point	N/A	Evaporation Rate	N/A	Volatile	N/A
Specific Gravity	1.20	Solubility in Water :	Insoluble		
Chemically Reactive:	N				
C. :	N/A G/L				
METHOD=EPA 24)					

Appearance/Odor

Appearance/Paste: Mild Petroleum Odor

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point :	>450 F	FLAMMABLE (EXPLOSIVE) LIMITS	Upper	N/A
			Lower	N/A

Odor
Veland Open Cup
Extinguishing Media
M. CARBON DIOXIDE, DRY CHEMICAL.

Special Fire Fighting Procedures

Self-Contained Breathing Supply.

Special Fire and Explosion Hazards

E.

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure

Acute

ACUTE EFFECTS EXPECTED WITHIN EXPOSURE LIMITS.

Chronic

CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING AND DIARRHEA.

CAUSE TEMPORARY EYE IRRITATION.

EATEN OR PROLONGED CONTACT CAN CAUSE IRRITATION AND DERMATITIS.

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CAUTION: DO NOT EAT

Emergency and First Aid Procedures

Exposure

AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR.

First Aid

KEEP INDIVIDUAL CALM AND SEEK MEDICAL ATTENTION IMMEDIATELY.

WASH EYES WITH WATER AND SEEK MEDICAL ATTENTION IF IRRITATION OCCURS.

WASH WITH SOAP AND WATER; REMOVE CONTAMINATED CLOTHING AND LAUNDRER BEFORE REUSE.

SECTION VI - REACTIVITY DATA

Conditions Contributing to Instability

STABLE.

Conditions Contributing to Hazardous Polymerization

NE.

Incompatibility (MATERIALS TO AVOID)

STRONG OXIDIZERS.

Hazardous Decomposition of Products

, CO₂.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled

USE APL ABSORBENT MATERIAL AND TRANSFER TO CONTAINERS.

Safe Disposal Method

CONSULT WITH FEDERAL, PROVINCIAL AND LOCAL WASTE REGULATIONS

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation Requirements

PROVIDE SUFFICIENT MECHANICAL VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

Protective Equipment:

WEAR EYE PROTECTION OR OTHER APPROPRIATE EYE PROTECTION.

WEAR PROTECTIVE GLOVES TO PREVENT REPEATED OR PROLONGED CONTACT.

IF THE TLV OF THE PRODUCT IS EXCEEDED, A MECHANICAL OR SELF-CONTAINED BREATHING APPARATUS IS ADVISED.

NO SPECIAL EQUIPMENT DEEMED NECESSARY UNDER NORMAL USAGE.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storage

AVOID PROLONGED INHALATION OF MISTS OR VAPORS.

These data are offered in good faith as typical values and not as a product certification. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.



Date: 09/17/85

CITGO PETROLEUM CORPORATION
P. O. Box 3758
Tulsa, Oklahoma 74102

MATERIAL SAFETY DATA SHEET

Trade Name: CITGO Cylinder Oil 680-7

Commodity Code: 35-023

Synonyms: Lubricating Oil

CAS Reg. No.: Mixture.

Citgo Index No. (CIN): 0223

Technical Contact: (918) 561-5165

Medical Emergency: (318) 491-6215

MATERIAL HAZARD EVALUATION
(Per OSHA's Hazard Communication
Standard [29 CFR Part 1910.1200])

Health: Non-Hazardous.

Precautionary Statement: None.

I. GENERIC COMPOSITION/COMPONENTS

<u>Components</u>	<u>CAS #</u>	<u>%</u>	<u>Hazard Data</u>
Refined Petroleum Oil(s)	64742-62-7	70-80	Oral: LD50(rat): >15g/kg - Eye: Practically Non-Irritating (0.7-1.7/110, Draize) Skin: Non-Irritating or Practically Non-Irritating (0-0.6/8, Draize) Inln: LC50/4H(rat): >3,310mg/m ³
Other Refined Petroleum Oils	Mixture	10-30	Oral: LD50(rat): >5g/kg
Refined Animal Fat	Mixture	5-10	Non-Hazardous, according to supplier
10% Polydimethylsiloxane foam inhibitor in light mineral oil	Mixture	<0.5	Non-Hazardous, according to supplier

CDF004400

ND = No Data

NA = Not Applicable

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IAS/35-023



IV. REACTIVITY DATA

Stability: X Stable Unstable

Conditions Contributing to Instability: None.

Incompatibility: Strong oxidants.

Hazardous Decomposition Products (thermal, unless otherwise specified):
CO, CO₂.

Conditions Contributing to Hazardous Polymerization: None.

V. SPILL OR LEAK PROCEDURES

Procedures if Material is spilled:

Remove sources of heat or ignition, provide adequate ventilation, contain leak. Absorb small spills with suitable material such as rags, straw or sand. Report spills as required to appropriate authorities.

Waste Disposal:

It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal.

- Check before disposing to be sure you are in compliance with all applicable laws and regulations. -

Protective measures during repair and maintenance of contaminated equipment:

Refer to Section VII - Special Protection Information.

Avoid prolonged contact with used oil, wash skin thoroughly with soap and water.

CDF004401

ND = No Data

NA = Not Applicable

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LAS/35-023



VII. SPECIAL PROTECTION INFORMATION

Ventilation Requirements: Ventilation is required when work place exposures exceed TLV. Very high mist concentrations can result in a fire and explosion hazard.

TLV: 5 mg/cu m as oil mist. (ACGIH 1984-85; OSHA 1972)

Specific Personal Protective Equipment:

Respiratory: Normally none required. If high vapor or mist concentrations expected - use respirator approved for organic vapors and mists.

Eyes: Safety goggles, or chemical splash goggles if splashing is anticipated.

Dermal: Oil impervious gloves if frequent or prolonged contact is expected.

Other Clothing or Equipment: Wear body-covering work clothes to avoid prolonged or repeated exposure. Launder soiled work clothes before reuse.

VIII. TRANSPORTATION AND SPECIAL PRECAUTIONS

Hazardous Material Placard/Label: None.

Storage: Store below 120°F. DOT Hazard label not required. Do not apply high heat or flame to container. Keep separate from strong oxidizing agents.

DOT Information:

DOT/UN Shipping Name:	Petroleum Lubricating Oil.
DOT Hazard Class:	Non-Hazardous.
DOT/UN Hazard Identification Number:	None assigned.
DOT Shipping Container Restrictions:	None.

Caution: Empty containers may contain product residue which could include - flammable or explosive vapors.

Consult appropriate Federal, State and Local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

All statements, information, and data provided in this material safety data sheet are believed to be accurate and reliable, but are presented without guarantee, warranty, or responsibility of any kind, expressed or implied, on our part. Users should make their own investigations to determine the suitability of the information or products for their particular purpose. Nothing contained herein is intended as permission, inducement or recommendation to violate any laws or to practice any invention covered by existing patents.

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ND = No Data

NA = Not Applicable

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